

REMARKS

Application Status

The instant non-final Office Action was mailed on February 19, 2004. A Petition to Revive this application was mailed to the U.S. Patent and Trademark Office on September 30, 2004, along with a reply to the Office Action. The petition was subsequently granted on May 6, 2005. The assignee transferred responsibility for the prosecution of this application to the law firm of Lowrie, Lando & Anastasi, LLP ("LL&A") at a point in time after the petition was filed. In the interest of completeness, a recently mailed Revocation of Prior Powers of Attorney and New Power of Attorney formally appointing LL&A as the assignee's attorney is attached. The undersigned is an attorney at LL&A. Applicants respectfully request that this Amendment be entered instead of the Amendment that was submitted with the Petition to Revive.

Claim Status

Claims 1-30 were originally filed in this application. Claims 1-12 were withdrawn as a result of a restriction requirement. Claims 31-41 are added and claims 1-12 and 20 are canceled by this amendment. New claims 31-41 are drawn to the elected invention and therefore should be examined pursuant to M.P.E.P. 821.03. Upon entry of the present amendment, claims 13-19 and 21-41 will be pending for examination with claims 13, 19 and 31 being independent claims. No new matter has been added.

Allowable Subject Matter

Applicants note with appreciation that claims 13-18 are allowed and that claims 20-28 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Amendments

Without acceding to the propriety of any claim rejections set forth in the Office Action, Applicants have canceled claim 20 and incorporated the subject matter of claim 20 into independent claim 19. Applicants maintain the right to pursue the subject matter of claim 19 as originally filed in one or more continuing applications. As amended, claim 19 recites:

An architecture for facilitating high signal throughput of an improved CMOS image sensor comprising a plurality of photo sensors configured in a two-dimensional area, said architecture comprising:

a pair of column address and row address decoders providing address signals to address each of the plurality of photo sensors;

a number of signal conditioning circuits, said signal conditioning circuits comprising a correlated double sampling circuit and a programmable gain amplifier, said signal conditioning circuits coupled to a column data bus for receiving charge signals read out from said photo sensors when said photo sensors are addressed by said address signals;

a number of analog-to-digital converters, each respectively coupled to one of said conditioning circuits and digitizing said charge signals in parallel to produce pixel signals; and

a pixel processor for receiving said pixel signals from said analog-to-digital converters, wherein said pixel signals are processed to produce a desired result.

Independent claim 31 and dependent claims 32-41 are newly added by this amendment.

Claim 31 recites:

An architecture for facilitating high signal throughput of an improved CMOS image sensor comprising a plurality of photo sensors configured in a two-dimensional area, said architecture comprising:

a pair of column address and row address decoders providing address signals to address each of the plurality of photo sensors;

a number of signal conditioning circuits, each coupled to a column data bus for receiving charge signals read out from said photo sensors when said photo sensors are addressed by said address signals;

a number of analog-to-digital converters, each respectively coupled to one of said conditioning circuits and digitizing said charge signals in parallel to produce pixel signals;

a pixel processor receiving said pixel signals from said analog-to-digital converters; and

a memory loaded with one or more instructions accessed by the pixel processor, wherein said pixel signals are processed to produce a desired result.

Rejections Under 35 U.S.C. §103(a)

The Office Action rejects claims 19 and 29, under 35 U.S.C. §103(a), as allegedly being unpatentable over U.S. Patent Publication No. US 2002/0101528 (“Lee”) in view U.S. Patent No. 6,597,399 to Horii (“Horii”).

Applicants have amended independent claim 19 to incorporate the subject matter of claim 20 which was objected to as described above. Applicants respectfully assert that for at least this reason, independent claim 19 is allowable.

Applicants respectfully assert that dependent claims 21-30 are each allowable because they each depend either directly or indirectly from the allowable independent claim 19.

Allowability of Newly-Added Claims

Claim 31 recites an architecture including “a pixel processor for receiving said pixel signals” and “a memory loaded with one or more instructions accessed by the pixel processor.” Applicants respectfully assert that none of the cited references describe the subject matter of claim 31.

For example, the Office Action states that “Lee et al does not explicitly disclose any signal processor to process digital pixel signals into video signals so as to be displayed on a monitor and be stored in a memory of a digital camera.” (Office Action at page 3). The Office Action then alleges that Horii “teaches using signal processing circuit 17 that processes digital signals in to video signal for displaying or storing in a memory.” Id.

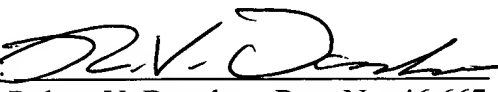
The use of signal processing circuitry, however, does not teach or suggest an architecture including “a pixel processor and a memory loaded with one or more instructions accessed by the pixel processor” as recited in claim 31. Applicants respectfully assert that, for at least these reasons, independent claim 31 is allowable. Dependent claims 32-41 each depend either directly or indirectly from claim 31 and are therefore allowable for at least the same reasons as claim 31. Support for the newly-added claims can be found, at least, at page 19, lines 3-15, and in the originally-filed claims.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that claims 13-19 and 21-41 are clearly and patentably distinguished over the cited references and are therefore allowable. Applicants respectfully request entry of this Amendment, reconsideration of all pending claims and withdrawal of all bases of objection and rejection. This application should now be in condition for allowance; a notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is cordially invited to call the Applicant's attorney at the telephone number listed below to discuss any outstanding issues.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, please charge the fee to Deposit Account No. 50/2762.

Respectfully submitted,
Kevin Brehmer, et al., Applicant

B~~y~~: 
Robert V. Donahoe, Reg. No. 46,667
LOWRIE, LANDO & ANASTASI, LLP
One Main Street
Cambridge, Massachusetts 02142
United States of America
Telephone: 617-395-7000
Facsimile: 617-395-7070

Docket No. Z2002-700110
Date: